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ABSTRACT

An experiment was designed and conducted for the Community College Department of Sociology. The objective was to determine the significant difference between the objective knowledge of sociology learned, and retained by groups taught by the systems approach method as compared to the lecture-discussion method. The systems analysis method is based on Bloom's Taxonomy of Education Objectives: Cognitive Domain. Teaching emphasis is on comprehension and evaluation or problem solving, demanding repetitive analysis-synthesis in the hierarchical development of skills, abilities and knowledge. An analysis of covariance was conducted for one experimental class which was divided into small groups of 3-4 for interaction and group decision making (systems approach), and four control classes (lecture, discussion). Students had not been exposed to previous sociology courses or the experimental course (Introduction to Sociology). An objective sociology test was used as criterion score and the grade point average as a control score. It was found that there is no significant difference between the classes in the department. (SBE)

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A REPORT ON

THE COGNITIVE (SYSTEMS-ANALYSIS) APPROACH

TO TEACHING INTRODUCTORY SOCIOLOGY

versus

THE TRADITIONAL LECTURE-DISCUSSION METHOD

to

Dr. J. Allen Suver
Assistant Director, Systems and Research
The State Board for Community College Education

by

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SO 000 002

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BACKGROUND OF STUDY

If the community college is truly to live up to its explicit commitment of being a "teaching institution" then it must experiment with innovative methods of teaching on the college level as well as concerning itself with the personal and professional qualifications of its instructors. Often, however, there develops an intra-departmental conflict which may become a source of serious dissention if not promptly resolved when one or more members of a department experiment with an instructional method which is seemingly diametrically opposed to the established traditional method used within the department. This conflict usually results in accusations from both sides that "your students are not learning anything." This study was motivated by such a conflict. Consequently, the researcher was asked to conduct an experiment which would (1) determine if there is any significant difference between the objective knowledge of sociology obtained by the groups taught by the systems-analysis approach and the groups taught by the lecture-discussion method; (2) determine if there is any significant difference in the objective knowledge of sociology learned by the two groups taught by the same method and (3) determine the retention of objective knowledge of sociology learned by the various methods.

Parts one and two were to be completed during the spring quarter of 1968 and part three was to be completed during the 1968-1969 school year.

SUMMARY OF THE SYSTEMS-ANALYSIS APPROACH

The systems-analysis method is based on the cognitive theory of learning from Bloom's Taxonomy of Educational Objectives. A brief look at the taxonomy will be helpful in understanding the basic philosophy underlying the method used in the experimental class. The taxonomy is organized into six major classes: 1.00 (knowledge); 2.00 (comprehension); 3.00 (application); 4.00 (analysis); 5.00 (synthesis); and 6.00 (evaluation).[1] Class 1.00, knowledge, makes demands on the psychological processes of remembering and recall. Class 2.00, comprehension, demands the ability to know what is being communicated and the ability to make some use of the ideas contained in the communication. Normally, this is the largest class of intellectual skills and abilities emphasized in college. Class 3.00, application, demands the transfer of training in the sense that most of what we learn is intended for application to problem situations. Class 4.00, analysis, demands the breakdown of material into its constituent parts and a detection of the relationships of the parts, their organization, and their composition as an aid to fuller comprehension or as a prelude to an evaluation of the material. Class 5.00, synthesis, demands a recombination of the parts of previous experience with new material reconstructed into a new better-integrated whole "innovation." This is the category which provides most for creative behavior on the part of the learner. Class 6.00, evaluation, demands the making of judgments about the value of ideas and work

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[1]Benjamin S. Bloom, Taxonomy of Educational Objectives: Cognitive Domain (New York, 1956), p. 18.

solutions. However, this is not necessarily the last step in thinking or in prcblem solving; it will, in some cases, be only the prelude to the acquisition of new knowledge and a new attempt at comprehension or application or, perhaps a new analysis and synthesis.

The experimental method recognized the fact that knowledge is the raw material on which intellectual abilities and skills are built; however, it further recognized the fact that knowledge and the ability to use it appropriately are not synonymous. Because of this, the systems-analysis approach to learning placed a teaching emphasis at levels 2.00-6.00.[2]

The term was divided into seven somewhat equal time periods with an assignment in "systems-analysis" as the focus for each of the seven units. Systems-analysis is simply a demand for repetitive analysis-synthesis, analysis-synthesis as the basic cognitive tool. To use this systems-analysis approach, the quarterly syllabus in the Introduction to Sociology course was divided into seven units.

Unit	Assignment	Key Concepts
One	"Group Decision Making"	small group techniques, consensus, objectivity, steps in scientific research, behavioral sciences
Two	"Class Survey"	social class, role, status, role conflict, class-typed behavior, etc.
Three	"Spokane's Geographic Structure"	ecological processes, patterns of urban design, urban life, etc.
Four	"Two Modern Industrial Societies"	socialization, meaning of culture, group (primary, secondary) norm, mores, ethnocentrism, etc.

[2]There is the resulting implied assumption in this study that the traditional method emphasizes level 1.00, knowledge.

Unit	Assignment	Key Concepts
Five	"Two Primitive Societies"	cooperation, conflict, competition, assimilation, accomodation, etc.
Six	"The Case of Mohamed S."	social change, social movements, cultural base, culture lag, innovation, change agent, etc.
Seven	"The Superior Society"	any pertinent concepts anywhere in the text or in other sources

In order to obtain as much student involvement as possible during the course the classes were broken into small groups of three or four members. Fifty per cent of the grade was determined by the group effort and fifty per cent of the grade was determined by individual test results.

The class procedure was as follows for each unit of work:

Class Time	Activity	Description of Activity
1 day	Introductory Lecture	An overview of major concepts to be dealt with in the unit assignment and in the unit test-retest
2-4 days	Small group work	The division of labor for successful completion of the assignment and the reaching of a consensus regarding the final form of the assignment
1 day	Lecture-discussion	(1) Collection of assignments at the beginning of this period, some of which are read to the class (2) Lecture to bring fuller meaning to the unit's "big picture"
1 day	Unit test-retest	An objective test keyed to levels 2.00 through 6.00 of the taxonomy is given, first individually, then to each small group. The difference between the mean individual scores in a group, and that group's consensus on the test is computed. The number thus derived (Group Consensus Deviation) becomes part of their group score for the term. It is an objective measure of effective group decision-making.
1 day	Unit review	Test and assignments handed back and discussed

The assignments were scored according to the following criteria.

--Format ---------- 2 points
(readable, sensibly structured, integrated)

--Data used ---------- 3 points
(Sufficient, pertinent, significant, any slighted?)

--Use of text ---------- 4 points
(reasonable ranking and grouping, cross-filing of text with data)

--Graphics ---------- 2 points
(readable presentation of key data in graphic form)

The value of using systems-analysis as a format for assignments in an introductory course is based on two considerations. First, since the taxonomy is arranged in a hierarchy, each category demands the development of pertinent skills, abilities and knowledges lower in the classification order. The finished assignments are both analysis and synthesis, while their successful completion demands student intellectual activity at levels 1.00 through 6.00. Secondly, systems-analysis is a relatively easy format for students to develop, and permits much quicker correction than does the traditional essay. Further, it minimizes the need for literary style (it takes the assignments out of the category of being "English compositions") which permits maximum consideration of sociological concepts and their interrelationships. Since it is an easier literary form to master than the essay, it creates much less threat to the student with marginal literary abilities, although it does stress the importance of writing meaningful and succinct phrases, the proper use of paragraphs and total structuring for ease of reading.[2]

A major benefit of group decision making is the opportunity it affords

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[2]See Appendix I

all members of the class to discuss sociology. Since the groups are small enough to provide for maximum intellectual interaction, more of the class become actively involved throughout the term than is possible in a teacher-dominated, class-wide discussion structure. Further, small groups that function effectively are self-correcting in their development of understandings. At points where members of groups falter for understanding, the instructor steps in, prodding for clarification of meaning, redirecting thought patterns, and giving support.[3]

PROCEDURE

Since it was in no way practical to match the various groups being tested, the research design used an analysis of covariance. The classes involved were five: one experimental class taught by the systems-analysis approach (Class E) and four control classes taught by the lecture-discussion method (Classes C_1, C_2, C_3, C_4). The latter four classes were taught by two instructors, each teaching two classes using the lecture-discussion method. All the classes contained students who registered without knowledge of the experimental conditions at the first of the spring quarter. The students had not been exposed to previous sociology courses nor to other instructors teaching the same course. It was, with perhaps some minor exceptions, the first time any student had taken Introduction to Sociology. The criterion variable was the score obtained from each group on an objective test taken from questions selected at random from the

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[3]The instructor consequently felt that he was able to be in touch with the intellectual processes of 60 students in a much more effective manner than was possible through the lecture method, not only because the groups are, for the most part, self-corrective, but also because he received a product from each group at seven regular intervals throughout the term.

test manual accompanying the class text, Sociology, by Paul B. Horton and Chester L. Hunt (2nd Edition, McGraw-Hill 1968). The ten chapters selected were chosen from a list of fifteen chapters ranked in order of preference submitted by the three instructors involved. Two different forms of the criterion test were administered. Form A of the test was administered to each group a week before the end of the spring quarter. Form B of the test was administered near the end of the fall, 1968 quarter to each student of the sample still enrolled at Spokane Community College. Form A of the test was again administered to each student of the sample still enrolled in Spokane Community College in the late spring of 1969.

The control variable was the spring, 1968 college grade point average for each student in the study. This was taken from the grade transcript of each student involved in the study. The grade point average was used as a generalized score of ability.

Forms A and B of the test were compiled from the chapters chosen by the instructors. One instructor, the instructor using the experimental approach, chose chapters throughout the book and ranked them in his order of preference. The second instructor, using the traditional lecture method, ranked fifteen chapters beginning with the last chapter covered and with two exceptions going down to the first chapter. The third instructor, also using the lecture method, refused to rank saying that each chapter, in his opinion, was of equal importance. From this, chapters were chosen by rank order of preference. Chapters 3, 4, 5, 6, 8, 9, 11, 13, 14, and 15 were chosen. From these chapters, five questions each were selected using a random table of numbers. Each form of the test consisted of fifty multiple choice, five item questions.

PARTS I AND II OF THE STUDY

Part I of the study was to ascertain if there were any statistically significant difference between the objective knowledge of sociology obtained by the groups taught by the systems-analysis approach and the groups taught by the lecture-discussion method. Part II of the study was to determine if there were any statistically significant difference between the objective knowledge of sociology learned by the two groups taught by the same method. Form A of the test was administered to each class during the last week of classes of the spring, 1969, quarter. The students were not told they were to have a test. The instructors were asked to tell the students that on the next day they would take part in a research project and that there would be no formal lecture class. The test answers were marked on a fifty unit auto-mata 450 score card and graded with the college grading machine. The results were computed using the number-right score. An analysis of covariance was calculated to test for overall significant differences. A "t" test for differences between adjusted means was calculated to determine if there were any significant differences between the various groups involved.

PART III OF THE STUDY

Part III of the study was to determine if there were any statistically significant differences between the retention of objective knowledge of sociology learned by the two methods. This part of the study was in two parts. The first part was conducted at the close of the fall, 1968, quarter. Form B of the test was administered to those students in the original population who were still enrolled at Spokane Community College. The second part was conducted at the close of the spring, 1969, quarter. Form A of the test was again administered to the original population still enrolled.

Students were invited by letter to take the tests. The results of these tests were analyzed by a covariance analysis with the same control variables as the other two administrations.

RESULTS
(Part I and II of Study)

According to the research design, a fifty item test was administered to the students enrolled in Introduction to Sociology at Spokane Community College in the spring quarter of 1968. Descriptive data for each group is shown in table 1.0.

Table 1.0

	E	C_1	C_2	C_3	C_4	Total
Number	22	33	25	51	33	164
Test Mean	16.77	20.45	19.76	18.02	19.82	18.97
Test σ	4.49	5.07	3.01	3.76	3.73	4.25
GPA Mean	2.36	1.96	2.05	2.43	2.50	2.28
GPA σ	.74	.87	.73	.81	.64	.80

Table 1.0 Descriptive Data for Administration of Form A, in the Spring of 1968

An analysis of covariance was calculated. The results of these computations were summarized in table 2.0.[4]

Table 2.0

Groups	df	ss_x	sp	ss_y	ss'_y	df	ms'_y
Within (w)	159	97.25257	234.20465	2700.56538	2136.54950	158	13.52246
Groups	4	7.52950	-24.82941	264.28398	409.92503	4	102.48125
Total	163	104.78207	209.37524	2964.84756	2546.47453	162	15.71897

$F_{4,158} = 102.48125/13.52246 = 7.57859 = p<.001$

Table 2.0 Analysis of Covariance for Form A Administered Spring, 1968, Using the Spring 1968 GPA as the Control Variable

[4]See Lindquist, p. 326

Since the F ratio ($F_{4,158}$ = 7.57859) was significant to the .001 level, it is obvious that the treatment differences were significant. With the significant covariance analysis, it was possible to test the differences between pairs of adjusted means within the test group. [5] The criterion means and their adjusted equivalents were shown in table 3.0.

Table 3.0

Group	Mean	Adjusted Mean	Difference
E	16.77272	16.59069	-.18203
C_1	20.45454	21.22812	+.77358
C_2	19.76000	20.31335	+.55335
C_3	18.01960	17.66902	-.35058
C_4	19.81818	19.28840	-.52978

Table 3.0 Criterion Means and Adjusted Equivalents for Form A

The difference between the adjusted means of the pairs was calculated by a "t" test using the error variance of the difference between the two adjusted criterion means.[6] The levels of significance for each of the tested pairs is in table 4.0. In each case t = 158.

Table 4.0

	E	C_1	C_2	C_3	C_4
E		4.47900 p<.01	3.44454 p<.01	1.14931 N. S.	2.66201 p<.01
C_1			Heterogeneity of Variance p<.05	4.23885 p<.01	2.09144 p<.05
C_2				2.91222 p<.01	1.03609 N. S.
C_3					1.97033 p<.05
C_4					

Table 4.0 Difference Between Adjusted Means

[5] See Lindquist, p. 327

[6] See Lindquist, p. 327

It should be noted that the "t" test could not be done for the differences of adjusted means between group C_1 and group C_2 because the variance was significantly heterogeneous at the .05 level.

Significance at the .01 level was found between the experimental group E, and control groups C_1, C_2 and C_4. There was no significant difference between the experimental group and control group C_3. A significant difference of .01 between control groups C_1 and C_3 was found. The difference between control groups C_1 and C_4 was found to be significant at the .05 level. The difference between control groups C_2 and C_3 was found to be significant at the .01 level, but there was no significant difference between control groups C_2 and C_4. There was, however, a significant difference between control groups C_3 and C_4 at the .05 level.

PART III OF THE STUDY

In the first part of the retention section of the study, 35 students were administered Form B of the test. Descriptive data for each group is shown in table. 5.0.

Table 5.0

	E	C_1	C_2	C_3	C_4	Total
Number	9	6	6	9	5	35
% of original population	41%	18%	24%	18%	15%	21%
Test Mean	18.66	23.67	22.17	21.44	18.20	20.77
Test σ	7.60	3.09	5.93	4.14	4.12	5.72
G.P.A. Mean	2.12	2.84	2.10	2.77	2.00	2.39
G.P.A. σ	.77	.60	.46	.53	.43	.69

Table 5.0 Descriptive Data for Administration of Form B in the Fall of 1968

An analysis of covariance was calculated for the test, using the GPA as the control variable. The results of this analysis are shown in table 6.0.

Table 6.0

Groups	df	ss_x	sp	ss_y	ss'_y	df	ms'_y
Within	30	12.44563	51.10666	1027.18855	817.32446	29	28.18360
Groups	4	4.37706	26.66191	117.09716	27.942289	4	6.98557
Total	34	16.82269	77.76857	1144.28571	789.38218	33	23.73525

$F_{4,29} = 6.98557/28.18360 = .24785 \quad p>.05$

Table 6.0 Analysis of Covariance for Form B Administered Fall, 1968, Using the Spring, 1968, College GPA as the Control Variable

Since the differences between the groups were not significant, there was no need for a "t" test between adjusted means.

In the second part of the retention sections of the study, thirty students were administered form A of the test. Descriptive data for each group is shown in table 7.0.

Table 7.0

	E	C_1	C_2	C_3	C_4	Total
Number	2	8	6	8	6	30
% of Original Population	9%	24%	24%	16%	18%	18%
Test Mean	11.50	19.00	20.83	18.00	18.83	18.57
Test σ	3.50	3.00	4.74	4.18	3.76	4.44
G.P.A Mean	2.04	2.44	2.09	2.70	2.45	2.43
G.P.A. σ	.23	.49	.23	.66	.66	.58

Table 7.0 Descriptive Data from the Administration of Form A in the Spring of 1969

An analysis of covariance was calculated for the test, using the GPA as the control variable. The results of this analysis are shown in table 8.0.

Table 8.0

Groups	df	ss_x	sp	ss_y	ss'_y	df	ms'_y
Within	25	8.52849	17.86667	455.66633	418.23673	24	17.42653
Groups	4	1.69309	-00.21200	135.70027	142.63689	4	35.65922
Total	29	10.22158	17.65467	591.36660	560.87362	28	20.03120

$F_{4,24} = 35.65922/17.42653 = 2.04626 \quad p>.05$

Table 8.0 Analysis of Covariance for Form A, Administered Spring, 1969, Using the Spring, 1968 College GPA as the Control Variable

Since the differences between the groups were not statistically significant, there was no need for a "t" test between adjusted means.

DISCUSSION

Since there seems to be no pattern of significant differences in Parts I and II between the experimental method and the traditional lecture-discussion methods, it is difficult to reject the null hypothesis even though the covariance finds significance at the .001 level. It thus becomes highly possible that there is a difference involved in these classes which is not directly related to the teaching methods. It is evident that the experimental group is much lower in both its raw mean and its adjusted mean than the highest of the other groups and it is reasonable then to expect a significant difference here. However, it is not necessarily reasonable to expect a difference between groups taught by the same instructor. For example, in C_3 and C_4, taught by the same instructor, we find a difference significant at the .05 level. Unfortunately, the level of significance in heterogeneity of variance precludes the possibility of accurately testing the difference between C_1 and C_2 with a "t" test. Also, it is interesting to note that there is no difference between the experimental group, E, and the control group, C_3, though we

find a significant difference at the .01 level between the experimental group and the other three groups. It is to be noted here that group C_3 was twice and more as large as the experimental group. There is a difference in group C_3 and group C_1 at the .01 level. Both C_1 and C_2 are somewhat smaller than C_3. There is a difference that is significant between C_1 and C_4, but not between C_2 and C_4 which would preclude an assumption that these classes perhaps were taught differently. It would seem, at this part of the study, that there is a significant difference between the majority of the classes taught in the sociology department, but that this difference is not necessarily applicable to the difference in teaching methods. There is a strong possibility that the differences involved are due to type of presentation, personality of instructor, time of day, size of class, or other similar variables which it was not the purpose of this study to identify. It should be noted that the descriptive data on the study indicates that both the control scores and the criterion scores are relatively normally distributed in all cases.

In part III of the study, neither the administration of Form B in the fall of 1968 nor the re-administration of Form A in the spring of 1969 were found to be statistically significantly different between the various groups involved. Thus, it is necessary to accept the null hypothesis that there is no difference between the retention of the objective knowledge of sociology between the experimental group and the control groups. The reduced size of the sample could well influence the validity of the analysis, however. This is especially true when only two subjects from the experimental group wereavailable for the final administration of the test. Nevertheless, there was found to be no difference between any of the five groups.

SUMMARY AND CONCLUSIONS

A covariance analysis was conducted to determine (1) if there was a significant difference between the objective knowledge learned by students in an Introductory to Sociology course using a systems-analysis approach and students in courses using the traditional lecture-discussion method; (2) if there was any significant difference between the various groups of students taught by the traditional-lecture discussion method; and (3) if there was any significant difference in the retention of objective knowledge of sociology between the various groups. There were one systems-analysis class and four traditional lecture-discussion classes involved in the experiment. Of the three instructors involved, one taught the experimental class and the other two taught two sections each of the traditional classes.

The results of the analysis of covariance for Parts I and II were as follows:

1. There was a statistically significant difference greater than .001 between all groups.
2. The experimental group was significantly lower than three of the four control groups.
3. There was a statistically significant difference between four of the six possible pairs of the control groups.

The lack of homogeneity among the control groups indicates a strong possibility of heterogeneity in uncontrolled variables such as individual instructor, class size, time of day, etc. Consequently, the difference between experimental group and the control groups may not be singularly due to the instructional method.

The results of the analysis of covariance for Part III were as follows:

1. There was no significant difference between all groups on the administration of Form B of the test, administered in the fall of 1968.

2. There was no significant difference between all groups on the re-administration of Form A of the test, one year later, in the spring of 1969.

It is apparent from this study that the systems-analysis does not produce a significant improvement in retention objective knowledge of sociology.

APPENDIX I

Sample Systems-Analysis Assignment

Social Class Ratings

Format	-- 2
Data	-- 4
Subject Matter	-- 3
Graphs	-- 2
	11
	+2
	13

OCCUPATION

Data	Textual Support
1. A. Eight fathers are semi-professionals or professionals.	1. A. Achieved statuses are not assigned at birth, but are left open to be filled by the persons who compete most successfully for them. p. 125
B. Fourteen fathers are employed in middle class areas.	B. The need for an increasing number of individuals in higher status occupations depends on changes in society which create more upper-class jobs. The need for personnel in high status occupations in the U.S. (An Industrialized Society) has been growing, as shown in Fig. 9, p. 351.
C. Twenty-two students aspire to be professionals, or semi-professionals.	C. Whether the students are aware of this, or merely enrapt in the "American Dream" of a higher status and better life than their parents, their aspirations are achievable. p. 348
D. Five students desire to have middle class occupations.	D. Table 15, p. 353 shows that persons in the middle and upper class achieve more upward mobility.

Data	Textual Support
E. The students as a group tend to have higher occupational aspirations than their fathers. None want semi-skilled positions, yet, six of the fathers hold such jobs.	E. The birth rate of the high income groups is too low to replace themselves. This makes room for a good deal of upward occupational mobility. p. 350-351

INCOME

Data	Textual Support
1. A. Fourteen fathers receive income from middle class sources. They are wage earners.	1. A. The nature and source of one's income carry suggestions as to one's family background and probable way of life. p. 266
2. A. Twenty-four students aspire to have middle class incomes. B. Two students want to work for wages.	2. A. Income, along with occupation and education are the main factors which, operating over a long period of time will lift one's class status. p. 354
3. A. One student has inherited wealth.	3. A. Inherited money is better than earned money, for inherited money shows family background. p. 266

HOUSE TYPE
AND
AREA LIVED IN

Data	Textual Support
1. A. Twenty-three parents live in above average all residental or average areas with no deterioration. B. Twenty-one students aspire for better suburb area or above average areas. C. Average student aspires to live in an above average area but is more concerned with his education, income and occupation than the area in which he desires to live.	1. "Whether it is necessary to the good life that communities be integrated in the traditional manner can be argued. Today, all American communities--urban, rural or suburban--are more nearly alike than ever before." p. 475 "The suburb is the fastest growing part of America. Between 1950 and 1960 the suburbs of our metropolitan areas grew by 49 per cent, while our rural population was shrinking 0.8 per cent and the central cities were growing by only 10.6 per cent." p. 465 "Clearly, occupation has become more important than rural or urban residence as a clue to one's personality and way of life." p. 474
2. A. Seventeen parents live in large or medium houses in good condition or large houses in medium condition.	2. "It is not enough merely to get and spend more money, for what one buys is more important than the amount one spends. To gain acceptance

Data	Textual Support
B. Twenty-eight students aspire to live in a large or medium house in good condition or large house in medium condition. C. Students aspire to have homes of large size and good condition.	at a new status level, one must assume a material standard of living appropriate to that level. This means moving to an appropriate neighborhood, decorating one's house in an appropriate manner...", p. 354. "The large city brought; (1) a division of labor into many specialized occupations; (2) social organization based upon occupation and social class rather than kinship; (3) formal government institutions based on territory rather than family; (4) a system of trade and commerce; (5) means of communication and record keeping; and (6) rational technology." p. 460

EDUCATION

Data	Textual Support
1. A. Eighteen out of twenty-eight fathers have only eighth grade or high school education. B. All students have attained above eighth grade and high school.	1. "Formal education is, therefore, becoming more necessary for occupational advancement than ever before." p. 353

Data	Textual Support
2. A. Ten out of twenty-eight fathers have had either some college, vocational training, a B. A., M. A. or Ph.D.	2. A. "...evidence indicates that higher education is open to a far larger proportion of the population than ever before." p. 353
B. All students have had some college, and seventeen out of twenty-eight, a clear majority, aspire to a college degree	B. "In 1900 one youth out of every sixty graduated from college; now one in eight does." p. 353
	C. "There will be a rapidly growing number of openings for graduate engineers and specialists of many sorts and for technicians with at least a high school or junior college education plus specialized technical training." p. 352-353
	D. "In 1900, unskilled laborers comprised 13 per cent of the labor force; by 1950 they had fallen to 8 per cent, and are expected to fall to 4 per cent by 1975; meanwhile, the professionals in the labor force have risen from 4 per cent in 1900 to 8 per cent in 1950 and are expected to reach 14 per cent by 1975." (National Education Assoc., 1959)

Data	Textual Support
3. The majority of students aspire to a higher education (and all that accompanies it) than the fathers.	3. A. "The American dream tells each young person to hope for a higher STATUS and a better life than his parents." p. 348 B. "...the American dream also implies that one has a chance to rise to higher-class STATUS." p. 349 C. "Social class and education interact in at least two ways; First, to get a higher education one needs money plus motivation... Second, one's amount and kind of education affects the class rank he will secure. Education is one of the main levers of the ambitious." p. 269 D. "Although a distinguished family background is a necessity for secure upper-class STATUS, education may substitute for this at the immediate class levels." p. 269
4. Education is often used as a criteria for social class ratings.	4. "Social scientists make great use of these three criteria--education, occupation, and income--in dividing people into social CLASS LEVELS..." p. 269

SOCIAL-CLASS RATINGS

Data	Textual Support
1. Definition of SOCIAL CLASS	1. A. "A SOCIAL CLASS is defined as a stratum of people of similar social position." p. 261 B. "Consequently, the number of social classes is not fixed, nor do any definite boundaries and sharp STATUS INTERVALS separate them." p. 262
2. This survey uses a six-fold classification of social levels. This is more accurate than the three-fold for this city.	2. "This six-fold classification... is probably fairly typical of the large and medium-size cities in the more settled parts of the country." p. 262
3. Prospects for SOCIAL MOBILITY are good.	3. A. "Social mobility includes all movement between social classes, either up or down." p. 352 B. "The prospects for SOCIAL MOBILITY depend upon the total number of openings in higher-status occupations and upon the barriers to their attainment by the lowly born.... and on the extent to which the upper-class parents produce enough children to fill these places....

Data	Textual Support
	Meanwhile the high income groups have had a birth rate too low to replace themselves. This makes room for a good deal of upward occupational mobility." p. 350-351
4. A. Twenty-two out of twenty-seven parents are either upper-middle, middle, or lower-middle class.	4. A. "The DGP may be described as a series of behavior tendencies of one who realizes that social mobility either upward or downward, is a real probability in his life." p. 365
B. Twenty-three out of twenty-seven children aspire to the solid upper-middle or to the upper class.	B. This is a middle-class pattern. "The middle class has both the hope of reaching upper-class status and the fear of slipping into the abyss of lower-class torment. As for the other classes, their view of the life situation does not produce this type of anxiety." p. 365
C. These students, still in the middle class, practice a DEFERRED GRATIFICATION PATTERN (DGP), postponing immediate satisfactions in order to gain some later GOAL.	C. "...in a study of 2,500 high school students who classified themselves as 'middle class' or 'working class', the middle class students showed many traits of the DGP." p. 366

Data	Textual Support
5. As stated above, chances for upward SOCIAL MOBILITY are good, but the United States does not have an absolutely OPEN SOCIETY.	5. A. "An OPEN CLASS SOCIETY is one in which people move up or down in the social structure strictly on the basis of personal effort and ability; a CLOSED CLASS SOCIETY is one in which position is fixed at birth and cannot be changed by individual achievement." p. 357 B. "The children of the most successful will inherit not only some of their parents' prestige, but also a better chance to acquire a good education and a driving ambition and a chance to begin their working life with a fair supply of capital." p. 359 C. "The children of the poor have to live down their parents' lowly status, have more trouble in acquiring a good education, and will have great difficulty in obtaining the capital needed for business success." p. 359

FINAL CONCLUSION

In each category of this survey -- OCCUPATION, INCOME, HOUSE TYPE, AREA LIVED IN, EDUCATION, and SOCIAL CLASS RATING -- students aspire to a higher status than what the parents have achieved. The prospects for upward social mobility are very good, but America is not entirely an open-class society and certain social barriers must be overcome before advancing.

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